LATERAL PERIODONTAL CYST

ABSTRACT
LATERAL PERIODONTAL CYST is a rare odontogenic cyst of developmental origin. It occurs on the lateral periodontal region of a vital tooth and has specific histologic features. In this paper a case of a lateral periodontal cyst is presented.

KEYWORDS: Odontogenic, Periodontal cyst, Globumaxillary cyst.

INTRODUCTION
The Lateral Periodontal Cyst is a non-keratinized, non-inflammatory developmental cyst occurring adjacent to or lateral to a tooth root. It is a slow-growing radiolucent lesion occurring most frequently in males during 5th to 7th decade. As part of the differential diagnosis, it must be distinguished from the collateral keratocyst and the gingival cyst of adult.

Diagnosing the lateral periodontal cyst from the gingival cyst of adults is difficult since the two cysts may have a common parentage. Also to be considered in the differential diagnosis is the lateral radicular cyst, inflammatory lateral periodontal cyst, radiolucent odontogenic tumors, and benign mesenchymal tumors.

CASE REPORT
A 44 yrs male patient reported in the outdoor patient department in Institute of Dental Sciences, Bareilly with the chief complaint of pain in lower right back tooth region since last 1 month.

History of present illness-Patient got trauma to the lower right back tooth during an accident 1 year back. Temporarily he was on medication and became all right but since last 1 month he again noticed pain which was dull and continuous in nature.

Clinical Examination of 44 & 45-On clinical examination it was seen that vestibule in relation to 44 and 45 was completely obliterated. 45 was tender on lateral percussion. There was expansion of buccal cortical plate. Swelling was soft, fluctuant giving an appearance of no buccal cortical plate.

Provisional Diagnosis-Lateral periodontal cyst in relation to 45.

Radiograph showing discontinuation of lamina dura associated with second premolar

Treatment Provided-Access opening, Scaling and Root planing. Root canal treatment done.

After elevation of mucoperiosteal flap a soft granulomatous bluish grey mass 3.3.4 mm in dimension, completely perforating the buccal cortical plate filling the cyst space was present which was attached to the cyst lining. Cyst was completely enucleated with the proper curettage of cyst cavity to remove all the lining epithelium.
Preoperative view of cystic elevation on the buccal surface of 1st and 2nd premolar area

Fragmented pieces of the lesion were freed from the bone with curettes and submitted for histopathological evaluation, which confirmed the diagnosis of a lateral periodontal cyst.

Photograph showing perforation of buccal cortical plate by cyst along with visible lateral surface of root in the perforation area.

After 2 weeks sutures removed.

Revaluation after 1 month shows that there was no recurrence of the cyst.

Photograph showing enucleated cystic mass

**Histological Examination:** Histologically the lateral periodontal cyst is characterized by a thin lining of non-keratinized epithelium usually 1 to 5 cell layers thick which resembles the reduced enamel epithelium. The thin lining is interspersed with conspicuous, sometimes numerous, glycogen-rich clear cells. Presence of dense fibrocellular connective tissue stroma, consist of numerous fibroblasts, collagen fibre bundles and dense chronic inflammatory cells mainly comprising of lymphocytes and plasma cells. Numerous proliferating, dilated blood capillaries lined by plump endothelial lining filled with and extravasated RBC's are seen.
DISCUSSION:
Since pain or other clinical symptoms have seldom been reported, lateral periodontal cysts are discovered on routine radiographic examination. The radiographic appearance is usually a round or teardrop-shaped, well circumscribed radiolucent margin located between the apex and the cervix of the tooth. The lateral periodontal cyst is not a common lesion. It's a non-inflammation type of periodontal cyst that could be a result of idiopathic stimulation of cell rests.

The lateral periodontal cyst is an intraosseous (central) cyst, associated with the root of a vital tooth. It occurs mainly in adults in the mandibular bicuspid-cuspid-incisor area. Clinically it presents no signs or symptoms but occasionally a small swelling of the gingiva or alveolar mucosa may be seen. The cyst is comprised of a cystic cavity with a connective tissue sac lined on the inner surface by a thin non-keratinized epithelium. The epithelial lining varies from a single flat layer of squamous cells to a thin lining of two to three cells interspersed with conspicuous clear cells while a thin lining of cuboidal or short columnar cells may be seen. A thin, irregular layer of cells with abundant, deeply eosinophilic cytoplasm projecting into the lumen has also been described.

Other histologic features of the lateral periodontal cyst include the absence of inflammation in the connective tissue, the artifactual separation of the lining epithelium from the underlying connective tissue, the hyalinization of connective tissue immediately beneath the epithelium, and the presence of glycogen-rich clear cell rests of dental lamina (The process seems to be similar to early stages of tooth development, when there is a thickening of stomatodeal ectoderm to form the dental lamina), with or without central cystic degeneration. typical epithelial lining with characteristic focal thickenings. The presence of mild chronic inflammation observed in the connective tissue is probably a result of secondary involvement from the neighboring inflamed gingiva.

Three possible sources of the epithelial lining:
1. Reduced enamel epithelium of an erupting tooth. There is a morphologic similarity between the cyst lining and reduced enamel epithelium. Also, the focal epithelial thickenings may be seen in the lining of dentigerous cysts.
2. Rests of the dental lamina. The glycogen rich epithelial islands in the wall of cysts are similar to these in dental lamina rests.
3. Rests of Malassez. These structures are characteristically present in the periodontal ligament.

DIFFERENTIAL DIAGNOSIS-
There are differences of opinion regarding the differentiation of the lateral periodontal cyst from gingival cyst of adults, which have similar histologic features. It is believed that these two lesions are distinct entities originating from similar epithelial sources (odontogenic epithelium) and developing within the alveolar bone (the lateral periodontal cyst) or within the gingiva (the gingival cyst).

The lateral periodontal cyst originates centrally in the alveolar bone or in the periodontal ligament and as it enlarges may perforate the cortical plate from the inside out, resulting in gingival swelling. It presents at the time of surgical removal as a bone cavity with sharp borders, because the surface of the alveolar bone forms an acute angle with the cyst cavity. The gingival cyst on the other hand, originates in the connective tissue of the gingiva and as it becomes larger finally erodes the surface of the alveolar bone from the outside in, leaving a bone cavity with ”blunt” borders in which the surface of alveolar bone forms an obtuse angle with the cyst cavity. Therefore careful evaluation of the borders of the bone cavity as well as the angle which is formed between the labial surface of the alveolar bone and the cyst cavity is extremely helpful in differentiating between the lateral periodontal cyst and the gingival cyst in those cases of cysts with both radiolucency and gingival swelling.

Provided that the lesion is unilocular on radiographic presentation, the lateral periodontal cyst is treated by surgical enucleation. Greer and Johnson reported that 8 of 10 recurrent cases were unilocular radiologically, but multilocular histologically. Therefore, clinicians are advised to follow these cases over a number of years. Because the lesions are benign and slow growing, left untreated they can enlarge 0.7 mm per year and cause gingival expansion.

REFERENCES:-